

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
3 August 2006 (03.08.2006)

PCT

(10) International Publication Number  
**WO 2006/081532 A1**

(51) International Patent Classification:

G01T 1/24 (2006.01) B05D 3/06 (2006.01)

(21) International Application Number:

PCT/US2006/003152

(22) International Filing Date: 27 January 2006 (27.01.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/647,589 27 January 2005 (27.01.2005) US

(71) Applicant (for all designated States except US): **II-VI INCORPORATED** [US/US]; 375 Saxonburg Boulevard, Saxonburg, PA 16056 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **SZELES, Csaba** [HU/US]; 1745 Hedwig Drive, Allison Park, PA 15101 (US). **CAMERON, Scott, E.** [US/US]; 323 Frederick Drive, Lower Burrell, PA 15068 (US). **MATTERA, Vincent, D., Jr.** [US/US]; 601 Applehill Court, Gibsonia,

PA 15044 (US). **CHAKRABARTI, Utpal, K.** [US/US]; 5523 Kurt Drive, Allentown, PA 18104 (US).

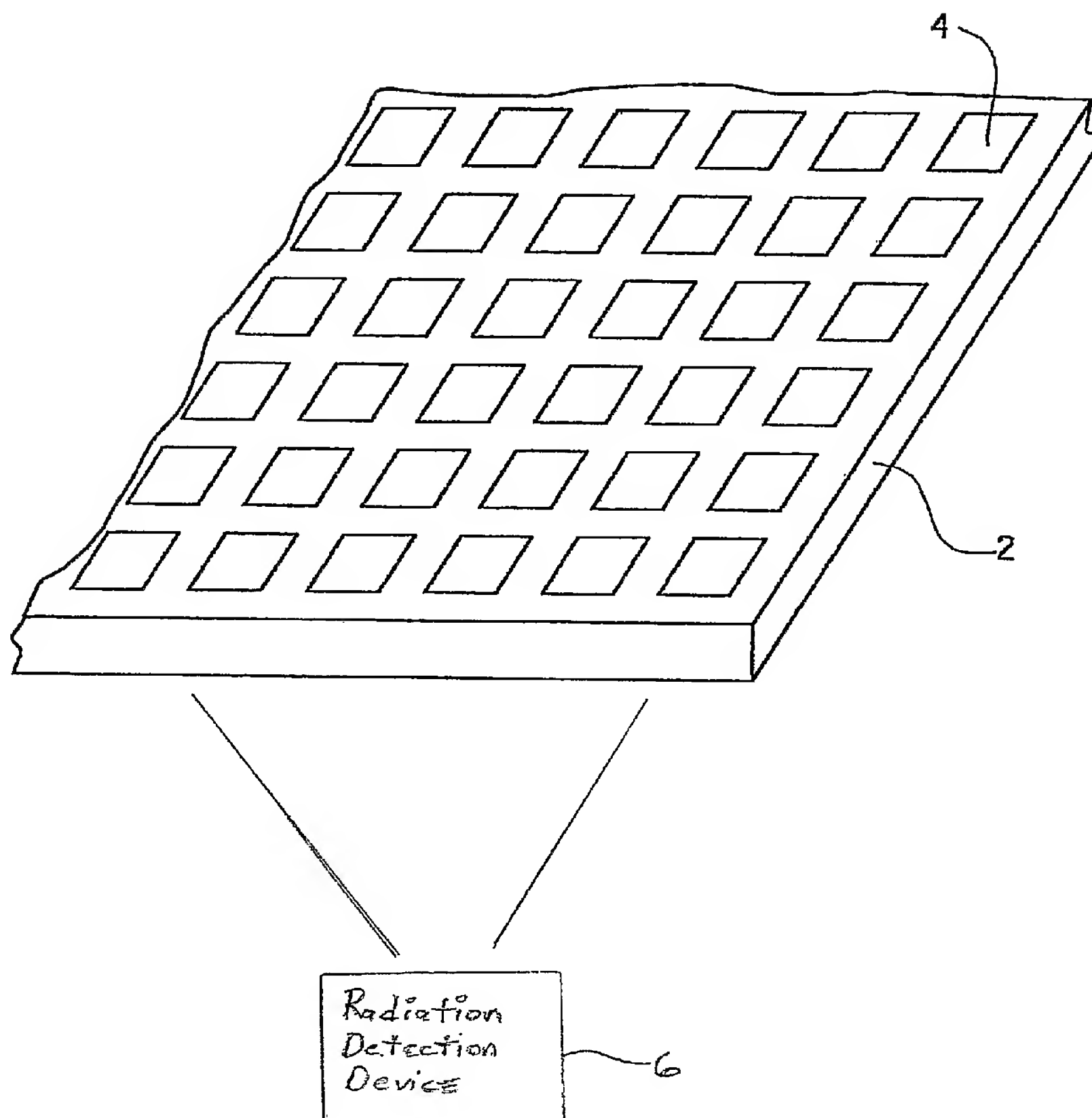
(74) Agents: **BYRNE, Richard, L.** et al.; The Webb Law Firm, 436 Seventh Avenue, 700 Koppers Building, Pittsburgh, PA 15219-1845 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

[Continued on next page]

(54) Title: RADIATION DETECTOR CRYSTAL AND METHOD OF FORMATION THEREOF



(57) Abstract: A radiation detector crystal is made from  $\text{Cd}_x\text{Zn}_{1-x}\text{Te}$ , where  $0 \leq x \leq 1$ ; an element from column III or column VII of the periodic table, desirably in a concentration of about 1 to 10,000 atomic parts per billion; and the element Ruthenium (Ru), the element Osmium (Os) or the combination of Ru and Os, desirably in a concentration of about 1 to 10,000 atomic parts per billion using a conventional crystal growth method, such as, for example, the Bridgman method, the gradient freeze method, the electro-dynamic gradient freeze method, the so-call traveling heater method or by the vapor phase transport method. The crystal can be used as the radiation detecting element of a radiation detection device configured to detect and process, without limitation, X-ray and Gamma ray radiation events.



FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,  
RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,  
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— *before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments*

**Published:**

— *with international search report*

*For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*